Concerning radial equilibrium of flow S/024/61/000/004/003/025
E194/E155

the outlet edges of the blades deviate from the direction of flow lines of the incident flow. The deflection is appreciably greater on the convex than on the concave side of the blading. When there is no breakaway of flow it was found that on the back of the blades the flow lines are deflected towards the sections of the blade having minimum angle of attack. The opposite effect is observed on the concave side of the blades. The experiment confirms the hypothesis of a velocity discontinuity.
There are 5 figures and 10 references (9 Soviet and 1 English.
The English language reference reads as follows:

Ref.6: Gas Turbins. Principles and practice contributors. London, 1957.

SUBMITTED: May 10, 1961

Card 4/4

L 18226-63 EPA/EWT(m)/BDS AEDC/AFFTC/ASD/APGC Pad
ACCESSION NR: AT3001861 S/2909/62/000/006/0076/0081

59

AUTHOR: Sokolov, K. K.

TITLE: Flow of a gas in a channel of an axial friction turbine

SOURCE: AN SSSR. Institut dvigateley. Trudy, no. 6, 1962, 76-81.

TOPIC TAGS: turbine, friction, friction turbine, axial, Hg, Hg vapor, gas, steam, mercury

ABSTRACT: This theoretical paper examines the flow of a gas in the driving portion of an axial, drum-type, friction turbine, that is, a bladeless turbine in which friction forces are employed to transfer the energy of the moving fluid to a rotating drum. Such turbines were envisioned by N. Ye. Zhukovskiy as early as 1901, and one such turbine, of a disk type constructed by N. Tesla with a power of 200 hp at 9,000 rpm, went into actual industrial operation. In a friction turbine, the gas or steam is set into rotation in a vortex chamber and then moves in a combined tangential and axial direction between two mutually connected, coaxial, cylinders that ride on a single shaft. During the motion in the annular channel, the gaseous flow is continuously decelerated and, when its absolute speed of flow becomes equal or almost equal to the rotary speed of the drum, the working fluid

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L 18226-63
ACCESSION NR: AT3001861

is ejected from the turbine in a radial direction. An analysis is given of the nonstationary motion of a viscous, incompressible, fluid operating under such conditions. The theoretical calculation concludes that an axial friction turbine is most effective with a small relative channel height, and that the most suitable working fluid is a gas or steam of great density, for example, Hg vapor. Orig. art. has: 3 figures and 11 numbered equations.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 11Apr63 ENCL: 00

SUB CODE: AI, PR, PH, EL NO REF SOV: 003 OTHER: 000

Card 2/2

SOKOLOV, K.K.

Portable weight-piston manometer for checking sphygmomanometers.
Izm. tekh. no.1:27 Ja '64.
(MIRA 17:11)

SOKOLOV, K.L.; IVASHKO, G.S.

Survey of the development of gas supply in the Soviet Union.
Uch. zap. Turk. gos. un. no.22:57-69 '62. (MIRA 18:11)

SOKOLOV, K.L.

Organizing the work of preparatory operations. Uch. zap. Turk. gos. un. no.22:95-101 '62. (MIRA 18:11)

SOKOLOV, K.M.; YEVSTAFEYEV, S.V.; ROSTOTSKIY, V.K.; GRECHIN, N.K.; STANKOVSKIY, A.P.; BAUMAN, V.A.; BERKMAN, I.L.; BORODACHEV, I.P.; BOYKO, A.G.; VALUTSKIY, I.I.; VATSSLAVSKAYA, L.Ya.; VOL'FSON, A.V.; DOMBROVSKIY, N.G.; YEGNUS, M.Ya.; YEFREMENKO, V.P.; ZIMIN, P.A.; IVANOV, V.A.; KOZLOVSKIY, A.A.; KOSTIN, M.I.; KRIMERMAN, M.N.; LINEVA, M.S.; MERKOV, A.S.; MIROPOL'SKAYA, N.K.; PETROV, G.D.; REBROV, A.S.; ROGOVSKIY, L.V.; SMIRNOV, G.Ya.; SHAFRANSKIY, V.N.; SHIMANOVICH, S.V.; SHNEYDER, V.A.

Evgenii Richardovich Peters; obituary; Mekh. stroi. 15 no.1:3 of cover Ja '58. (MIRA 11:1)

(Peters, Evgenii Richardovich, 1892-1957)

SOKOLOV, K.M. YEVSTAFEYEV, S.V.; ROSTOTSKIY, V.K.; STANKOVSKIY, A.P.; VARENIK, Ye.I.; ONUFRIYEV, I.A.; SVESHNIKOV, I.P.; UKHOV, B.S.; BAUMAN, V.A.; BARSOV, I.P.; BASHINSKIY, S.V.; BOYKO, A.G.; VALUTSKIY, I.I.; ZAPOL'SKIY, V.P.; ZOTOV, V.P.; IVANOV, V.A.; KAZARINOV, V.M.; LEVI, S.S.; MALOLETKOV, Ye.K.; MERENKOV, A.S.; MIROPOL'SKAYA, N.K.; OSIPOV, L.G.; PEREL'MAN, L.M.; PETROV, G.D.; PETROV, N.M.; POLYAKOV, V.I.; VATSSLAVSKAYA, L.Ya.; VAKHRAMEYEV, S.A.; VERZHITSKIY, A.M.; VLASOV, P.A.; VOL'FSON, A.V.; VOSHCHININ, A.I.; DZHUNKOVSKIY, N.N.; DOMBROVSKIY, N.G.; YEPIFANOV, S.P.; YEFREMENKO, V.P.; ZELICHENOK, G.G.; ZIMIN, P.A.; POPOVA, N.T.; ROGOVSKIY, L.V.; REBROV, A.S.; SAPRYKIN, V.A.; SOVALOV, I.G.; SOSHIN, A.V.; STARUKHIN, N.M.; SURENYAN, G.S.; TOLORAYA, D.F.; TROITSKIY, Kh.L.; TUSHNYAKOV, M.D.; FROLOV, P.T.; TSIRKUNOV, I.P.

Andrei Vladimirovich Konorov; obituary. Mekh. stroi. 16 no.1:32 Ja '59. (MIRA 12:1)

(Konorov, Andrei Vladimirovich, 1890-1958)

SOKOLOV, K.M.

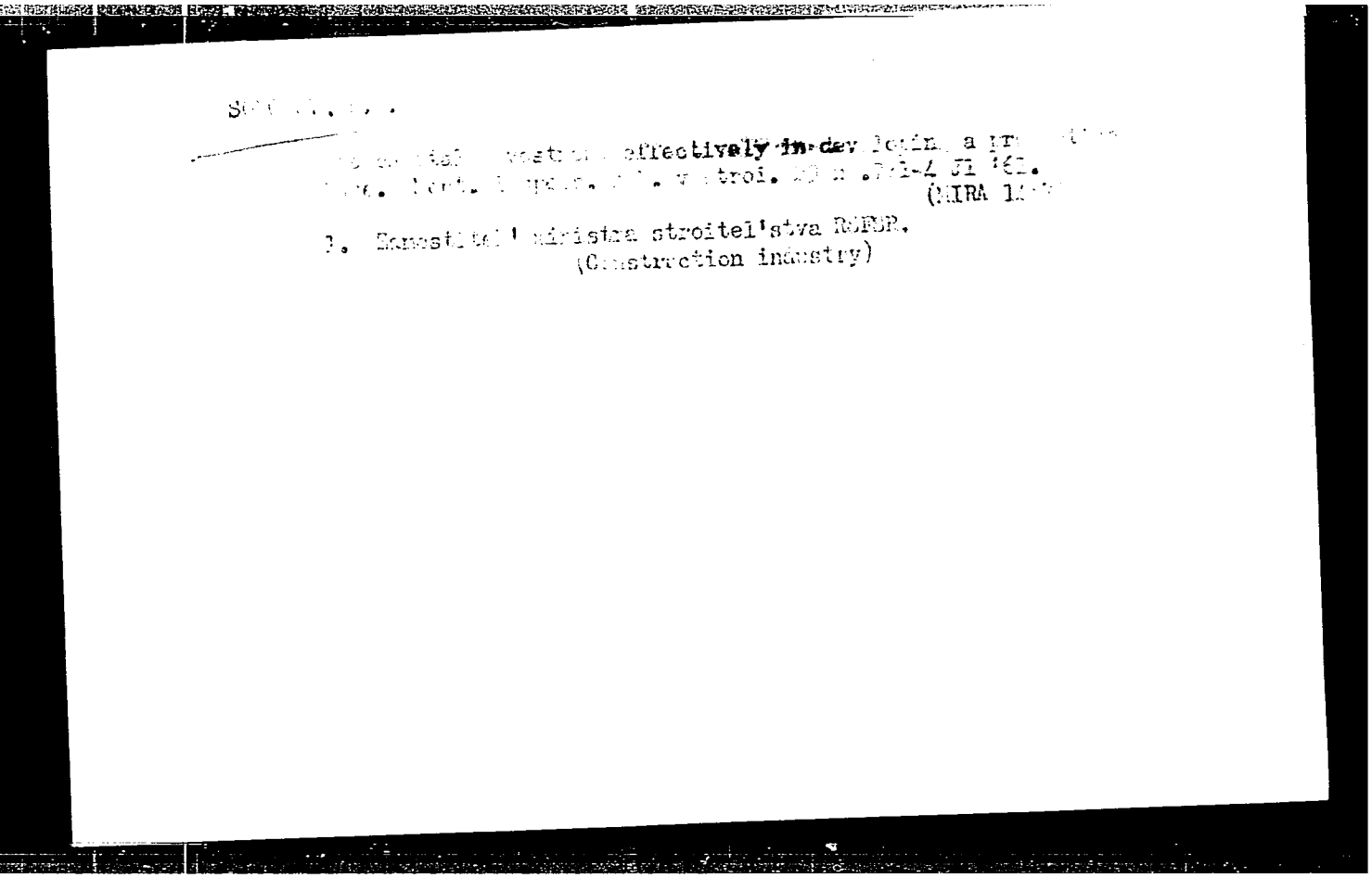
Improve technical standards of assembling operations. Nov.tekh. mont.i spets.rab.v stroi. 21 no.11:1-4 N '59. (MIRA 13:2)

1. Zamestitel' ministra stroitel'stva RSFSR.
(Construction industry)

PTITSYN, Gennadiy Antonovich; KOKICHEV, Valentin Nikolayevich; IVANOV, A.F., nauchnyy red.; SOKOLOV, K.M., inzh., retsenzent; KLIMINA, Ye.V., red. izd-va; KOROVENKO, Yu.N., tekhn. red.

[Calculation and reconditioning of used gears] Raschet i izgotovlenie zubchatykh peredach v remontnom dele; spravochnoe posobie. Leningrad, Gos. soiuznoe izd-vo sudostroit. promyshl., 1961. 518 p. (MIRA 14:8)

(Gearing—Maintenance and repair)



KOKICHEV, Valentin Nikolayevich; SOKOLOV, K.M., inzh., retsenzent; IVANOV, A.F., nauchnyy red.; NIKITINA, R.D., red.; KRYAKOVA, D.M., tekhn. red.

[Sealing devices in the machinery industry] Uplotniaiushchie ustroistva v mashinostroenii. Leningrad, Sudpromgiz, 1962. 207 p. (MIRA 15:7)

(Sealing (Technology))

1. SOKOLOV, K.N.

2. USSR (600)

4. Technology

7. Equipping heat plants. Auziliary equippment and processes of refrigeration. Sverdlovsk, Mashgiz, 1952

9. Monthly List of Russian Accessions, Library of Congress, March, 1953.Unclassified.

SOKOLOV, K.N.

Restoring worn parts by a hard alloy filler deposit. TSement 21 no.3:31-32 My-Je '55. (MLRA 8:10)
(Cement industries--Equipment and supplies)

SOKOLOV, K.N.

Collective work of Polish teachers ("Lessons on the school experimental plot for grade 5." Reviewed by K.N. Sokolov). Biol.v shkole no.4:72-74 Jl-Ag '57. (MLRA 10:8)

1.Chlen-korrespondent Akademii pedagogicheskikh nauk RSFSR, zasluzhennyy uchitel' shkoly RSFSR. 2.Rostovskiy pedagogicheskiy institut.
(Poland--Agriculture--Study and teaching)
(Potatoes)

SOKOLOV, K.N., zasluzhennyy uchitel' shkoly RSFSR.

"Polytechnical training in rural schools." Reviewed by K.N. Sokolov. Biol. v shkole no.6:86-87 N-D '57. (MIRA 10:12)

1. Chlen-korrespondent APN RSFSR, Rostovskiy pedagogicheskiy institut.
(Agriculture--Study and teaching)

SOKOLOV, K.N., zasluzhennyy uchitel' shkoly RSFSR.

Common fig, relative of the nettle. IUn.nat. no.7:19 Jl [illegible].
(MIRA 10:8)

(Fig)

SOKOLOV, K.N.

Biological table games. Biol.v shkole no.5:95 S-O '59. (MIRA 13:8)

1. Rostovskiy pedagogicheskiy institut. Chlen-korrespondent APN RSFSR.
(Biology) (Indoor games)

SOKOLOV, Konstantin Nikolayevich; KLITSA, B., red.; SKVORTSOVA, L., tekhn. red.

[Masters of biological desiccation] Mastera biologicheskoi sushki. Kostroma, Kostromskoe knizhnoe izd-vo, 1960. 25 p. (MIRA 14:10)
(Lumber--Drying)

SOKOLOV, K.N., zasluzhennyy uchitel' shkoly RSFSR

Device for observations on the germination of pollen. Biol. v shkole no.5:87 S-O '60. (MIRA 13:11)

1. Rostovskiy pedagogicheskiy institut; chlen-korrespondent Akademii pedagogicheskikh nauk RSFSR.
(Microscopy)

SOKOLOV, K.N.

Biology lessons in the Lipetsk Province schools. Biol.v shkole no.4:17-19 Jl-Ag '62. (MIRA 15:12)

1. Chlen-korrespondent Akademii pedagogicheskikh nauk RSFSR.
(Lipetsk Province—Biology—Study and teaching)

SOKOLOV, K.N., zasluzhennyy uchitel' shkoly RSFSR

Don't break but improve the present system of biological education. Bio. v shkole no.2:39-40 Mr-Ap '63. (MIRA 16:4)

1. Rostovskiy pedagogicheskiy institut.
(Biology—Study and teaching)

SOKOLOV, K. N.

23750 OV ISPOL'ZOVANII MESTNOGO MATERIALA V PREPODAVANII OSNOV DARVINIZMA. (IZ OPYTA PACHELM. SRED. SHKOLY PENZ. OBL.) (SOKR. DOKLAD NA "PED. CHTENIYAKH" PRI AKAD. PED. NAUK RSFSR. FEVR. 1949 G.) SOV. PEDAGOGIKA, 1949, NO. 7, S. 51-53

SO: LETOPIS' NO. 31, 1949

SOKOLOV, K. N.

Oborudovanie termicheskikh tsekhov; termicheskie pechi i nagrev metalla. Moskva, Mashgiz, 1950. 386 p. diagrs.

Bibliography: p. 381-(384)

(Equipment of heat-treatment shops: thermal furnaces and heating of metals.)

DLC: TN677.S58

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

SOKOLOV, K.N., kandidat tekhnicheskikh nauk; ZAKHAROV, B.P., inzhener, redaktor; DUGINA, N.A., tekhnicheskiy redaktor

[Plant equipment for the heat treatment of steel; auxiliary equipment and cold working processes] Oborudovanie termicheskikh tsekhov; vspomogatel'noe oborudovanie i protsessy okhlazhdeniia. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1952. 271 p. [Microfilm] (MLRA 7:10)

(Steel--Heat treatment)

SOKOLOV, K.N.; SADOVSKIY, V.D., retsenzent, doktor tekhnicheskikh nauk; ZAKHAROV, B.P., inzhener, redaktor; DUGINA, N.A., tekhnicheskiy redaktor.

[Heat treatment of steel] Tekhnologiia termicheskoi obrabotki stali. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry, 1954. 298 p. (MLRA 8:1)
(Steel--Heat treatment)

SOKOLOV, K.N.

[Technology of steel heat treatment] Tekhnologiia termicheskoi obrabotki stali. Moskva, Mashgiz, 1954. 300 p. (MLRA 7:11D)

SOKOLOV, K. N.

Comparison of Mechanical Properties of Alloyed Rope Wires After Various Preliminary Thermal Treatments
Tr. Uralsk. politekhn. in-ta., 46, 1954, pp 79-86

Mechanical properties of steel 40 KhN and steel alloys KhG, SG, SGD, KhS, KhSD, and KhGS after various thermal treatments were tested for strength, bending, and torsion. It was found that steel alloys with 0.5% C content and with Cr, Si, Mn, and Ni content up to 1.5% may be submitted to drawing. (RZhFiz, No 5, 1955)

PETUKHOV, P.Z., doktor tekhnicheskikh nauk, redaktor; MIKHAYLOV, G.P., doktor tekknicheskikh nauk, redaktor; SOKOLOV, K.N., kandidat tekhnicheskikh nauk, redaktor; SHUNAYEV, B.K., kandidat tekhnicheskikh nauk, redaktor; GANAGO, O.A., kandidat tekhnicheskikh nauk, redaktor; KAZAK, S.A., kandidat tekhnicheskikh nauk, redaktor; BORETSKIY, A.A., dotsent, kandidat tekhnicheskikh nauk, redaktor; STUDNITSYN, B.P., vedushchiy redaktor; DUGINA, N.A., tekhnicheskiy redaktor.

[Examples of automatization and mechanization of production] Primery avtomatizatsii i mekhanizatsii proizvodstva. Moskva, Ges.nauchno-tekhn.izd-vo mashino-stroit.lit-ry, 1955. 285 p. (Iz opyta Ural'skikh i Sibirskikh zavodov, no.1). (MLRA 9:6) (Automation) (Machinery industry)

Sokolov, K.N.

112-1-1402

Translation from: Referativnyy Zhurnal, Elektrotekhnika, 1957, Nr 1, p.214 (USSR)

AUTHOR: Sokolov, K.N.

TITLE: Examples of Automation and Mechanization in Heat Treating Shops (Primery avtomatizatsii i mekhanizatsii v termicheskikh tsekhakh)

PERIODICAL: From: Primery avtomatiz. i mekhaniz. proiz-va, Moscow-Sverdlovsk, Mashgiz, 1955, pp.98-117.

ABSTRACT: Bibliographic entry

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PHASE I BOOK EXPLOITATION 690

Sokolov, Konstantin Nikandrovich

Oborudovaniye termicheskikh tsekhov (Equipment of Heat-treatment Shops) Moscow, Mashgiz, 1957. 420 p. 10,000 copies printed.

Reviewers: Shmykov, A.A., Doctor of Technical Sciences, Rustem, S.L., Candidate of Technical Sciences, Samoshin, I.G., Candidate of Technical Sciences, and Arzamasov, B.N., Candidate of Technical Sciences; Ed.: Lapkin, N.I., Candidate of Technical Sciences; Tech. Ed.: Dugina, N.A.; Executive Ed. (Ural-Siberian Division, Mashgiz): Kaletina, A.V., Engineer.

PURPOSE: This book is intended primarily for students of higher technical institutes, but may also be useful to engineers and technicians whose work involves the heat treatment of metals.

COVERAGE: The book describes basic equipment for heat-treatment shops. Considerable attention is given to the design of modern heat-treating furnaces,

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heating devices, cooling installations, as well as procedures for making design calculations. The author also discusses auxiliary equipment used for producing protective atmospheres, for removing scale from machine parts, for straightening, quality control of parts, and automatic temperature regulation. Methods of determining heating and cooling time for heat-treating processes are also considered. The general bibliography contains 166 references, of which 150 are Soviet, 6 are English, and 2 German. For additional references, see Table of Contents. No personalities are mentioned.

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LEBEDEV, Afanasiy Fedorovich; SOKOLOV, K.N., kand.tekhn.nauk, red.; DUGINA, N.A., tekhn.red.

[Fully mechanized heat treatment of tractor parts] Kompleksnaia mekhanizatsiia termicheskoi obrabotki detalei. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1958. 46 p. (MIRA 12:3)

(Cementation (Metallurgy)) (Tractor industry)

SOV/137-59-3-7030

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 3, p 300 (USSR)

AUTHORS: Sokolov, K. N., Perminov, P. P., Kotel'nikova, R. I.

TITLE: An Investigation of Quenching of Steel 20KhN3A Directly After Carburizing (Issledovaniye neposredstvennoy zakalki stali 20KhN3A posle tsementatsii)

PERIODICAL: Tr. Ural'skogo politekhn. in-ta, 1958, Nr 68, pp 158-168

AESTRACT: The following seven methods of post-carburizing (C) treatment of specimens made of steel 20KhN3A were investigated: 1) Standard oil quenching (Q) from 800°C. 1-a) Standard Q in conjunction with low-temperature treatment; after Q, the specimens were maintained at a temperature of -195° for a period of one hour. 2) Direct oil Q immediately after C. 2-a) Direct oil Q followed by a one-hour period of low-temperature soaking at -195°. 3) Direct oil Q in conjunction with preliminary cooling to 780° for a period of one hour. 4) Direct step-wise Q at a temperature of 200° for a period of 30 minutes followed by cooling in oil. 5) Direct isothermal transformation at the first stage (at 600°; soaking time: three hours) with subsequent oil Q from 800°. 7) Preliminary high tempering. C and cooling in air

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An Investigation of Quenching of Steel 20KhN3A Directly After Carburizing

is followed by tempering at 650° (two hours) which, in turn, is again followed by cooling in air. Finally, oil Q from a temperature of 800°. Final tempering for all types of treatment involves immersion in oil at a temperature of 200° for a period of one hour. An analysis of mechanical properties obtained by the procedures indicated demonstrates that the method of direct Q immediately after C can not be recommended for components made of steel 20KhN3A. The optimal conditions involve cooling of the carburized components in air followed by standard oil Q from 780-800° and tempering at 200°. Bibliography: 13 references.

A. B.

Card 2/2

PHASE I BOOK EXPLOITATION SOV/3482

Nauchno-tekhnicheskoye obshchestvo mashinostroitel'noy promyshlennosti. Sverdlovskoye otdeleniye

Mekhanizatsiya i avtomatizatsiya mashinostroitel'nogo proizvodstva [illegible] ation and Automation in the Machine-Building Industry) [illegible], 1959. 519 p. 12,000 copies printed.

Ed.: Ya. V. Pal'tov, Doctor of Technical Sciences; Tech. Ed.: [illegible] Editorial Board: P. P. Vakhrushev, Engineer, V. V. [illegible], Technical Sciences, Ya. V. Pal'tov, Doctor of [illegible] Poruchikov, Candidate of Technical Sciences, V. V. [illegible] Technical Sciences, K. N. Sokolov, Candidate of [illegible] Sokolovskiy, Candidate of Technical Sciences, [illegible] B. K. Shunayev, Candidate of Technical Sciences, and [illegible] sor.

PURPOSE: This book is intended for production engineers and [illegible] in industrial planning.

COVERAGE: The material presented in this book is said to [illegible] developed and tested in the machine-building plants [illegible] of Siberia. Listed are various methods of [illegible] and their applications in foundries, forging shops, [illegible] Other fields of use include welding, hoisting, [illegible], and quality control on an industrial scale. Various mechanisms, devices, tools, and instruments currently used in mechanization and automation of [illegible] industrial processes are described and illustrated. The equipment [illegible] is said to have been produced by the plants using their own resources. The economic aspects of mechanization and automation are discussed. There are [illegible]

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4. Mechanization and Automation of Induction (Ivanov, V.A., M. A. Rubinchik, M. I. Myalkis, N. M. Sidrov, F. P. Yeremin, A. G. Baranov, V. V. Milovidov, and B. F. Artem'yev, Engineers)
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   High frequency quench-hardening of tractor parts 256
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1. Mechanization and Automation of Metal-Cutting Machine Tools (Bayevskiy, S. A., M. A. Korolev, I. G. Mikulin, L. S. Mintsengendler, V.P. Sazhin, and Ya. L. Shlakhkin, Engineers) 297
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   Modernization of large machine tools 306
   Automation of axial displacement of a hob in a gear generating machine (Shunayev, B. K., Candidate of Technical Sciences, and G. M. Shalin, Engineer) 331

MINAYEV, Anatoliy Nikolayevich, kand.tekhn.nauk; SHIPILIN, Boris Il'ich, inzh.; TELEGIN, A.S., kand.tekhn.nauk; LEVCHENKO, P.V., kand. tekhn.nauk; SOKOLOV, K.N., kand.tekhn.nauk; SHAVEL'ZON, M.V., inzhener; MINAYEV, A.N., kand.tekhn.nauk; YAROSHENKO, Yu.G., kand.tekhn.nauk; GORSHKOV, A.A., doktor tekhn.nauk, retsenzent; DUBITSKIY, G.M., kand.tekhn.nauk, obshchiy red.; BUTAKOV, D.K., kand.tekhn.nauk, red.; KSENOFONTOV, B.M., kand. tekhn.nauk, red.; PORUCHIKOV, Yu.P., kand.tekhn.nauk, red.; DUGINA, N.A., tekhn.red.

[Cupola furnaces and drying chambers] Liteinye pechi i sushila. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 472 p. (MIRA 12:6)

1. Kafedra liteynogo proizvodstva Ural'skogo politekhnicheskogo instituta (for Gorshkov, Telegin). 2. Chlen-korrespondent AN USSR (for Gorshkov).
(Foundry machinery and supplies)

S/123/62/000/020/004/007
A006/A101

AUTHOR: Sokolov, K. N.

TITLE: Ways of technical advance in heat-treating metals

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 20, 1962, 27 - 28, abstract 20B170 (In collection: "Puti razvitiya mashinostr. Orenburgsk. ekon. r-na", Sverdlovsk-Orenburg, 1960, 42 - 49)

TEXT: Information is given on heat treatment processes in the form of short characteristics. Particular attention is paid to gas carburizing, high-frequency quenching, bright quenching in alkaline melts, isothermal annealing and heat treatment in a vacuum. Characteristic features of advanced equipment and techniques, employed in the USSR for these processes, are presented.

[Abstracter's note: Complete translation]

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77899
SOV/129-60-2-12/13

AUTHOR: Sokolov, K. N. (Candidate of Technical Sciences)

TITLE: On a Book by V. S. Sagaradze, "The Heat Treatment of Railroad Car Steel Parts"

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1960, Nr 2, p 61 (USSR)

ABSTRACT: This is a short review of the above book published by Mashgiz, 1955, describing various technological processes of heat treatment, based on the many years of expeience of the Ural Railroad Car Plant (Uralvagonzavod).

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SOKOLOV, Konstantin Nikandrovich; VOROB'YEV, S.A., kand. tekhn. nauk, retsenzent; TEIEGIN, A.S., kand. tekhn. nauk, retsenzent; SHIFRIN, A.M., inzh., red.; DUGINA, N.A., tekhn. red.

[Mechanization and automatic control in heat treatment plants] Mekhanizatsiia i avtomatizatsiia v termicheskikh tsekhakh. Moskva, Mashgiz, 1962. 294 p. (MIRA 15:4)
(Metals--Heat treatment)
(Metallurgical plants--Equipment and supplies)

LEBEDEV, Nikolay Sergeyevich; TELEGIN, Aleksandr Semenovich, dots., kand. tekhn. nauk. Prinimali uchastiye: SOKOLOV, K.N., dots., kand. tekhn. nauk; SUKHANOV, Ye.L., dots., kand. tekhn. nauk; LYTKIN, V.I., inzh., retsenzent; DUGINA, N.A., tekhn. red.

[Heating furnaces]Nagrevatel'nye pechi. Moskva, Mashgiz, 1962. 344 p. (MIRA 15:12)

(Furnaces, Heating)

SOKOLOV, K.N.

Fifth All-Union Scientific Technological Conference of Metallography and Heat Treatment Specialists. Metalloved. i term. obr. met. no.10:46-50 O '63. (MIRA 16:10)

VISHNYAKOV, Dmitriy Yakovlevich, prof., doktor tekhn. nauk; ROSTOVTSEV Gennadiy Nikolayevich; NEUSTRUYEV, Aleksandr Aleksandrovich; STARODUBOV, K.F., doktor tekhn. nauk, prof., akademik, retsenzent; SOKOLOV, K.N., doktor tekhn. nauk, prof., retsenzent; DOLZHENKOV, I.Ye., kand. tekhn. nauk, dots., retsenzent; SHTEPENKO, V.Z., kand. tekhn.nauk, dots. retsenzent; KRAVTSOV, A.F., kand. tekhn. nauk, dots., retsenzent; FIL'TSER, G.A., dots., retsenzent; SILICH, A.N., st. prepodav., retsenzent; SIUKHIN, A.F., assistent, retsenzent; SAVEL'YEV, L.P., assistent, retsenzent

[Equipment, mechanization and automation of heat-treating plants] Oborudovanie, mekhanizatsiia i avtomatizatsiia v termicheskikh tsekhakh. Moskva, Metallurgiia, 1964. 467 p. (MIRA 17:10)

1. Akademiya nauk Ukr. SSR (for Starodubov).

SOKOLOV, Konstantin Pavlovich; PETROV, A.I., redaktor; KOLOSKOVA, M.I., redaktor izdatel'stva; KRYNOCHKINA, K.V., tekhnicheskiy redaktor

[Geological interpretation of magnetic prospecting data] Geologicheskoe istolkovanie magnitorazvedochnykh dannykh. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr, 1956. 126 p. (Prospecting--Geophysical methods) (MLRA 9:10)

BEL'FOR, A.G., inzh.; ZILIST, L.A., inzh.; SOKOLOV, K.S., inzh.

Plans for the automation of standardized concrete and mortar units. Mekh. stroi. 19 no.5:8-9 My '62. (MIRA 15:5)
(Mixing machinery) (Automatic control)

SOKOLOV, K.S., inzh.

Types of concrete and mortar mixing machinery. Mekh. stroi. 19 no.5:26 My '62. (MIRA 15:5)
(Mixing machinery)

GIRSKIY, V.A., inzh.; ZILIST, L.A., inzh.; SOKOLOV, K.S., inzh.

Standardization of concrete and mortar mixers. Mekh. stroi. 19 no.5:4-7 My '62. (MIRA 15:5)
(Mixing machinery)

SOKOLOV, L.

Reference book requiring serious improvement ("Car owner's handbook." K.S.Shestopalov) Reviewed by L.Sokolov. Avt.transp.33 no.8:40 Ag '55. (Automobiles--Maintenance) (Shestopalov,K.S.) (MLRA 8:12)

SOKOLOV, L.

Causes of noise in the rear suspension of the M-20 Pobeda automobile. Avt.transp.34 no.11:19-20 N '56. (MLRA 9:12)

1. Gor'kovskiy avtozavod imeni Molotova.
(Automobiles--Repairing)

SOKOLOV, L.

Investigating causes of defects in hydraulic brakes. Avt. transp. 35 no.12:21-22 D '57. (MIRA 11:1)

1. Gor'kovskiy avtomobil'nyy zavod.
(Automobiles--Brakes--Testing)

SOKOLOV, L.; SHIMANOVSKIY, N.

Correcting defects in operating drives of gearboxes of passenger cars. Avt. transp. 36 no.3:31 Mr '58. (MIRA 11:3)
(Automobiles--Transmission devices)

GNETNEV, V.; SOKOLOV, L.

Changes in the design of shock absorbers made by the Gorkiy Automobile Plant. Avt. transp. 36 no. 6:39-40 Je '58. (MIRA 11:7)
(Gorkiy--Automobiles--Shock absorbers)

SOKOLOV, L. (Riga)

Soviet-made motor-mounted bicycle. Za rul. 17 no.12:19 D '59. (MIRA 13:4)

1. Nachal'nik konstruktorskogo otdela rizhskogo velozavoda "Sarkana zvaygzne" ("Krasnaya zvezda").
(Motorcycles)

SOKOLOV, L.

Some structural and operational characteristics of the "Volga" automobile. Avt. transp. 38 no. 12:35-37 D '60. (MIRA 13:12)

1. Gor'kovskiy avtomobil'nyy zavod.
(Automobiles)

SOKOLOV, L.

Improving the fastening of valves. Av.transp. 40 no.7:53 Jl '62. (MIRA 15:8)

(Valves)

SOKOLOV, L., mladshiy nauchnyy sotrudnik; AZIZOV, M.; ZHURAVLEVA, A., mladshiy nauchnyy sotrudnik; DMITRIYEV, A., mladshiy nauchnyy sotrudnik

Justification of the architectural and structural type of a universal dry-cargo ship with 3,000-4,000-ton deadweight. Mor. flot 23 no.8:29-32 Ag '63. (MIRA 16:11)

1. TSentral'nyy nauchno-issledovatel'skiy institut morskogo flota. 2. Starshiy inzh. TSentral'nogo nauchno-issledovatel'skogo instituta morskogo flota (for Azizov).

1. PANFILOV, V. P. : ORLOV, L. A. Eng.

2. USSR (600)

4. Building - Standards

7. Standard plans for small residential buildings designed by State Institute for Planning of Standard Industrial Construction. Biul. stroi. tekh, 9 no. 24. 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1952. Unclassified.

S/194/61/000/012/051/097
D256/D303

AUTHOR: Sokolov, L. A. and Strizhevskiy, I. V.

TITLE: Instruments for tracing underground pipelines and cables

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 12, 1961, 34, abstract 12V298 (Sb. naychn. rabot. Akad. kommun. kh-va, 1960, no. 2, 88-93)

TEXT: Tracing underground metallic lines is usually performed using inductive methods: HF current is sent in the direction of the search and the resulting electromagnetic field is detected on the surface by the operator using an induction coil followed by an amplifier and headphones. The size and weight of the portable unit can be considerably reduced by employing modern miniature components. The required technical specification of modern search instruments are given together with a description of an instrument developed at the K. D. Panfilov Academy of Communal Economy, Corrosion Laboratory. There are 2 figures and 8 references. [Abstractor's note: Complete translation.]

Card 1/1

STRIZHEVSKIY, I.V.; SOKOLOV, L.A.

Electrochemical devices and their possible uses. Sbor.nauch.rab.AKKH no. 4. Zashch.podzem.soor.ot kor no.2:126-156 '60. (MIRA 15:7)
(Electrochemistry—Equipment and supplies)

L 15584-63 EPR/EPA(b)/EWT(1)/BDS AFFTC/ASD Ps-4/Pd-4 WW

ACCESSION NR: AP3000721 S/0258/63/003/002/0362/0366

63

AUTHORS: El'kin, Yu. G.; Neyland, V. Ya.; Sokolov, L. A. (Moscow)

TITLE: Base pressure on a wedge in supersonic flow

SOURCE: Inzhenerny*y zhurnal, v. 3, no. 2, 1963, 362-366

TOPIC TAGS: base pressure, laminar mixing, flow separation, wedge flow

ABSTRACT: The authors have used the model of laminar mixing of a supersonic jet with quiescent air to derive an expression for the base pressure on a wedge in supersonic flow. Use has also been made of the heat transfer results in separated flow. The assumptions are made that thermodynamic equilibrium exists throughout the flow and that the boundary layer thickness at the start of mixing (or flow separation) is zero. The governing flow equations are integrated numerically after using the Dorodnitsy*n transformations. It is shown that for very large mach numbers the pressure ratio between the wedge base and the wedge surface remains almost constant for small wedge angles (less than 10°) but tends towards

Card 1/2

L 15584-63

ACCESSION NR: AP3000721

infinity for larger wedge angles. For a blunt-edged plate (zero wedge angle) in hypersonic flow the insensitivity of the base pressure to changes in the mach number is correlated with the mach independence principle. Orig. art. has: 14 equations and 4 figures.

ASSOCIATION: none

SUBMITTED: 23Aug62 DATE ACQ: 21Jun63 ENCL: 00

SUB CODE: AI NO REF SOV: 002 OTHER: 005

Card 2/2

SOKOLOV, L.A.

Temperature measurement of ingots during their heating in soaking furnaces. Izv. vys. ucheb. zav.; chern. met. 6 no.3:189-194 '63. (MIRA 16:5)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.

(Steel ingots) (Furnaces, Heating)

L 13523-65 EWT(l)/EWP(m)/FCS(k)/EWA(l) Pd-4 ASD(d)/AFETR/SSD/ASD(f)-2/
AEDC(a)/AFTC(a)/AS(dp)-3

ACCESSION NR: AP4037096 S/0258/64/004/002/0247/0250

AUTHORS: Neyland, V. Ya. (Moscow); Sokolov, L. A. (Moscow)

TITLE: Base pressure behind wedges at angle of attack in supersonic gas flow

SOURCE: Inzhenernyy zhurnal, v. 4, no. 2, 1964, 247-250

TOPIC TAGS: base pressure, wedge flow, supersonic flow, Dorodnitsyn variable, stagnation zone, angle of attack, mixing region

ABSTRACT: The base pressure on wedges at angles of attack α in an inviscid supersonic stream has been determined from similarity considerations. The assumption is made (see Fig.1 on the Enclosure) that $P_{2B} = P_{2H} = P_d$, $Pr = 1$ and $\rho\mu = \text{const}$. The gas flow in the mixing region is represented by

$$G = \sqrt{2(\rho\mu)_* U_* x}\,[f(\eta) - f(-\infty)],$$

where G is defined by

$$G = \int_{-\infty}^{y_2} \rho U dy.$$

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L 13523-65

ACCESSION NR: AP4037096

The Dorodnitsyn variables are introduced, and the mass conservation in the stagnation region is represented by

$$\sqrt{\lambda_{2H} x_H} f(\eta_H) + \sqrt{\lambda_{2B} x_B} f(\eta_B) = 0,$$

where η_B, η_H - streamline coordinates for upper and lower flow region, and x_B and x_H - length of upper and lower stagnation zone boundaries. Numerical results are obtained for $0 \leq \alpha \leq 30$, and Mach numbers 2, 5, and 10. P_d/P versus α curves shows that at small angles of attack base pressure rises slowly with increase in α. For small wedge angles, the base pressure reaches a maximum at some angle of attack and then decreases. Orig. art. has: 8 formulas and 4 figures.

ASSOCIATION: none

SUBMITTED: 13Feb63 ENCL: 01

SUB CODE: ME NO REF SOV: 002 OTHER: 002

Card 2/3

L 13523-65
ACCESSION NR: AP4037096

ENCLOSURE: 01

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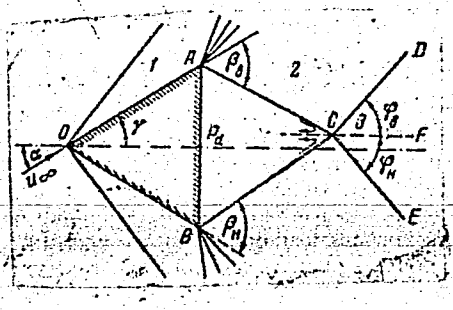

Fig. 1. Flow geometry

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L 00585-66 EPA(s)-2/EWT(m)/EPF(n)-2/EWP(t)/EWP(b) JD/WW/JG
ACCESSION NR: AP5021605 UR/0286/65/000/013/0076/0077

AUTHORS: Sokolov, L. A.; Kazanskiy, V. A.; Sel'kin, G. S.; Ustyuzhanin, V. N.; Shashkov, V. N.

TITLE: Device for continuous temperature measurement of liquid metal. Class 42, No. 172516

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 13, 1965, 76-77

TOPIC TAGS: liquid metal, smelting temperature, temperature measurement

ABSTRACT: This Author Certificate presents a device for continuous temperature measurement of liquid metal.. The device is calibrated for each chemical composition and contains a temperature transducer and a measuring circuit. To automate the smelting process by simultaneously measuring the liquid metal temperature and the difference between the liquid metal and its crystallization temperatures according to the temperature gradient in the container, the container is made of cooled walls of material with high thermal conductivity, e.g. copper. This container is in direct contact with the liquid metal (see Fig. 1 on the Enclosure). To measure the temperature gradient in the high thermal conductivity wall, the device is provided with several temperature transducers placed on the outer and inner

Card 1/3

L 00585-66

ACCESSION NR: AP5021605

ENCLOSURE: 01

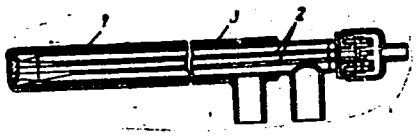


Fig. 1. 1- cooled wall with high thermal conductivity; 2- temperature transducers (thermocouples); 3- steam pipe

Card 3/3

ZAKHARYAN'YA, N.A., NOVITSKIY, M.A.; SOKOLOV, L.A.; LUKOVTSEV, P.D.

Process of lead anodic oxidation on a platinum micro-electrode. Part 1: Dependence of the current decay on pH of the supporting electrolyte. Elektrokhimiia 1 no.2:138-142 F '65. (MIRA 18:6)

1. Institut elektrokhimii AN SSSR.

AVERBUKH, A.M.; NOVITSKIY, M.A.; SOKOLOV, L.A.; LUKOVTSEV, P.D.; SOKOLOV, L.A.; LUKOVTSEV, P.D.

Anodic oxidation of iodide on a platinum microelectrode. Part 2: Effect of the electrolyte stirring and of the rate of potential change. Elektrokhimiia 1 no.3:251-254 Mr '65. (MIRA 18:12)

1. Institut elektrokhimii AN SSSR.

L 23997-66 EWT(l)/EWA(h)
ACC NR: AP6009838 SOURCE CODE: UR/0413/66/000/004/0031/0031

AUTHOR: Borovkov, V. S.; Knots, L. L.; Lukovtsev, P. D.; Sokolov, L. A.

ORG: none

66
B

TITLE: An ELF pulse generator. Class 21, No. 178858 [announced by Institute of Electrochemistry, AN SSSR (Institut elektrokhimii AN SSSR)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 4, 1966, 31

TOPIC TAGS: ELF, pulse generator, positive feedback, current stabilization, semiconductor device

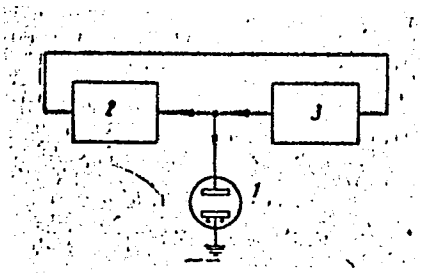
ABSTRACT: This Author's Certificate introduces: 1. An ELF pulse generator based on semiconductor devices. The unit contains a switching circuit, a reversible current stabilizer and a positive feedback circuit. In order to reduce the frequency and increase the stability of the generated pulses, an electrochemical time-delay element is connected in the positive feedback circuit at the output of the reversible current stabilizer. The voltage from this element is fed to the switching circuit. 2. A modification of this generator in which various periods of oscillations may be produced by connecting several electrochemical elements with various time delays in the feedback circuit.

UDC: 621.373.52

Card 1/2

I. 23997-66

ACC NR: AP6009838



1--electrochemical time-delay element; 2--electronic switching circuit; 3--reversible current stabilizer

SUB CODE: 09/ SUBM DATE: 05Apr65/ ORIG REF: 000/ OTH REF: 000

Card 2/2

Card 1/2 UDC: 621.746.5

ACC NR: AP6036697

ΔT_p for different T_{cr} and ΔT_{ST}--the difference between the temperatures of the external and internal wall surfaces of the thermoprobe head. Experiments were done in liquid steel baths in which T_{cr} was varied by changing the carbon content. A cross section of the thermoprobe head is shown, including a second improved design which utilized a series of thermocouples, allowing a summation of thermal emf to be made. The latter design minimized the thermal inertia of the thermocouple junctions. Measurements were taken of the metal temperature, the carbon content of the steel, ΔT_{ST}, the water temperature entering and leaving the thermoprobe, and the water flow rate. The water temperature in the thermoprobe remained at 280-290°K. Calibration curves for determining T_M and ΔT_p from ΔT_{ST} were given for T_{cr} = 1403, 1503, and 1613°K. In all cases the dependence of T_M and ΔT_p on ΔT_{ST} was linear. Values of T_M were obtained up to 1850°K, although it is possible to use the technique at higher temperatures if the thermoprobe head is made of a heat resisting material. Orig. art. has: 3 figures, 6 formulas.

SUB CODE: 11,20/ SUBM DATE: 26May66/ ORIG REF: 001

Card 2/2

SOKOLOV, L.B.; VOROB'YEV, L.N.; PROFIR'YEVA, Yu.I.; PETROV, A.A.

Regularities of dialkylation of monosubstituted conjugated diacetylenes on palladium. Zhur. org. khim. 1 no.9:1544-1549 S '65. (MIRA 18:12)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta. Submitted July 29, 1964.

NOKOLOV, L. B.

NOKOLOV, L. B.: "The mechanism of simultaneous polymerization with bifunctional monomers." Min Chemical Industry USSR. Order of Labor Red Banner Sci Res Physicochmeical Inst imeni L. Ya. Karpov. Moscow, 1956. (Dissertation for the Degree of Candidate in Chemical Science)

Source: Knizhnaya Letopis' No. 28 1956 Moscow

SOKOLOV, L. B.
SOKOLOV, L. B., and ABKIN, A. D.

"General theory of addition polymerization," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Karpov. Inst/

B-3,084,395

SOKOLOV, L.B.; ABKIN, A.D.

Additivity of contraction in copolymerization. Vysokom. soed. 1 no.6: 863-864 Je '59. (MIRA 12:10)

1.Fiziko-khimicheskiy institut im. L. Ya. Karpova.
(Polymerization)

SOKOLOV, L.B.; ABKIN, A.D.

Copolymerization with the participation of bifunctional manomers.
Vysokom.soed. 1 no.7:1024-1026 Jl '59. (MIRA 12:11)

1. Fiziko-khimicheskiy institut im L.Ya. Karpova.
(Polymerization)

5(4) SOV/76-33-6-34/44

AUTHORS: Sokolov, L. B., Abkin, A. D.

TITLE: On the Mechanism of Copolymerization With Participation of Bifunctional Monomers (O mekhanizme sovmestnoy polimerizatsii s uchastiyem bifunktsional'nykh monomerov). I. Copolymerization of α-Chloracrylate of 2-Ethoxyethanol With Styrene, Methylmethacrylate and Methylacrylate (I. Sovmestnaya polimerizatsiya α-khlorakrilovogo efira 2-etoksietanola so stirolom, metilmetakrilatom i metilakrilatom)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 6, pp 1387-1392 (USSR)

ABSTRACT: In connection with the problems of synthesis of branched and reticular polymers (P), investigations of the polymerization mechanism of systems with binfunctional monomers are particularly important. The copolymerization (CP) of the monomers styrene (I), methylmethacrylate (II) and methylacrylate (III) with ethylene-glycol-di-α-chloracrylate (IV) and 2-ethoxyethanol-α-chloracrylate (V) was investigated. The present paper presents the experimental results obtained with (V). The (CP) took place in methylethylketone solutions at 50°C. Benzoylperoxide was used as initiator, and the re-

Card 1/3

On the Mechanism of Copolymerization With Participation of Bifunctional Monomers. I. Copolymerization of α-Chloracrylate of 2-Ethoxyethanol With Styrene, Methylmethacrylate and Methylacrylate

action kinetics was determined by the dilatometric method. On the system (III) - (V) it was observed that (V) is a more active monomer than (III) but much less active than the radical. The (CP)-constants computed for this system are $\alpha = 0.1$ and $\beta = 3.8$. A closer consideration of the reaction mechanism is put forward. In the (CP) of (II) with (V) there was computed $\alpha = 0.4$ and $\beta = 1.2$, and in contrast to the system (III) - (V), a weak maximum was observed in the diagram polymerization rate (PR) - composition (Fig 2). The latter is due to polar factors. For the system (I) - (V), the values $\alpha = 0.12$ and $\beta = 0.26$ were obtained which point to the fact that (I) is more active than (V) in the reaction with the monoester radical. In the diagram (PR) - composition (Fig 3), a distinctly marked maximum can be observed which is also produced by a polar effect. A comparison of the (CP)-constants obtained with those of the system with methyl-α-chloracrylate (Refs 8-10) (Table) shows good agreement. It is ascertained that the polymerization kinetics of the systems investigated can be well represented by the simplified equation of the

SOV/76-33-6-34/44

On the Mechanism of Copolymerization With Participation of Bifunctional Monomers. I. Copolymerization of α-Chloracrylate of 2-Ethoxyethanol With Styrene, Methylmethacrylate and Methylacrylate

copolymerization kinetics, under the assumption of equal initiation rates of the process on both monomers. Finally, the authors express their thanks to Academician S. S. Medvedev. There are 3 figures, 1 table, and 17 references, 8 of which are Soviet.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova, Moskva (Physico-chemical Institute imeni L. Ya. Karpov, Moscow)

SUBMITTED: December 13, 1957

Card 3/3

5 (4), 5 (8)

AUTHORS: Sokolov, L. B., Abkin, A. D. SOV/76-33-7-9/40

TITLE: On the Mechanism of Copolymerization With Participation of Bifunctional Monomers. II. Particularities of the Polymerization of Binary Systems With the Participation of the Ethylene Glycol Di-α-chloroacryl Ester

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 7, pp 1495 - 1503 (USSR)

ABSTRACT: The authors investigated the copolymerization (CP) of the ethylene glycol di-α-chloroacryl ester (I) (diester) with styrene (II), methyl methacrylate (III), and methyl acrylate (IV). (I) was obtained from α-chloro acrylic acid and ethylene glycol by a method described already earlier (Ref 1). The authors checked the polymerization (P) at 50 ± 0.05°C in methyl-ethyl ketone at a monomer concentration of 1 mol/l. During the (P) of (I) it was found that the polymer is precipitated by (P) of 3 or 4%. For the (CP) of (IV) with (I) the (CP)-constants $\alpha = 0.7$ and $\beta = 3.6$ were obtained, for the (CP) of (III) with (I) $\alpha = 0.35$ and $\beta = 1.4$, and for the (CP) of (II) with (I), $\alpha = 0.04$ and $\beta = 0.2$. Accordingly, the authors found the following: The (P)-rate of (I) is twice as great as that of the

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On the Mechanism of Copolymerization With Participation of Bifunctional Monomers. II. Particularities of the Polymerization of Binary Systems With the Participation of the Ethylene Glycol Di-α-chloroacryl Ester SOV/76-33-7-9/40

monoester. By the method of light dispersion it was found (Table) that ramified and reticular copolymers are formed during the (CP) of (I). In the initial stage of (CP), the reactivity of the vinyl groups of (I) is equal to the reactivity of the vinyl groups of the monoester. A characteristic feature of the (CP) of the systems (IV) + (I) and (III) + (I), i.e. with bifunctional monomers like (I), is its low separation rate, which is ascribed to the reticular structure of the resultant copolymer and regarded as a specific phenomenon of the reaction kinetics of systems with bifunctional monomers. For investigations of the particularities of the system it is assumed that the reaction acceleration with time is to be explained by an accumulation of radicals within the system, which is caused by chain transfer on the part of the polymer, or by an initiation reaction of the added vinyl groups. In conclusion, the authors thank Academician S. S. Medvedev for his assistance.

Card 2/3

On the Mechanism of Copolymerization With Participation of Bifunctional Monomers. II. Particularities of the Polymerization of Binary Systems With the Participation of the Ethylene Glycol Di-α-chloroacryl Ester

SOV/76-33-7-9/40

There are 5 figures, 1 table, and 12 references, 4 of which are Soviet.

ASSOCIATION: Fizikokhimicheskiy institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

Card 3/3

84501

15.8000 2109,2205

S/190/60/002/004/001/020
B004/B056

AUTHORS: Sokolov, L. B., Kudim, T. V.

TITLE: Interfacial Polycondensation of Diamine Salts With Chlorides of Dicarboxylic Acids

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 4, pp. 481-484

TEXT: In the introduction, the authors explain the advantages offered by interfacial polycondensation. It was the aim of the present paper to carry out polycondensation directly with diamine salts without any previous preparation of pure diamines. In this manner an intermediate stage of the process is eliminated, and working with the sometimes toxic diamines is avoided. The authors describe the interfacial polycondensation of terephthalic acid chloride with the chlorides and bromides of ethylene diamine and hexamethylene diamine. The acid chloride was dissolved in toluene, the diamine salt in water, to which alkali had been added because preliminary experiments had shown that without an

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addition of alkali no polycondensation takes place. The following concentrations are given: 0.216 mole/l ethylene diamine salt + 0.108 mole/l terephthalic acid chloride; 0.108 mole/l hexamethylenediamine salt + 0.054 mole/l terephthalic acid chloride. The ratio between the hydrocarbonic phase and the aqueous phase is 2 : 1. As may be seen from Fig. 1, the experimental data (yield as a function of alkali concentration) exhibits considerable spread, which is ascribed to the sensitivity of the reaction to diffusion factors (rate of stirring etc.). The yield curves show marked maxima (between about 5 and 10% alkali concentration). These maxima are explained by the increasing amount of diamines liberated with increasing alkali concentration. At an excessively high alkali concentration, the yield, however, decreases because of increasing saponification of the acid chloride. Fig. 2 shows the viscosity of the polymers dissolved in sulfuric acid as a function of the alkali concentration during the polycondensation. Also in this case, viscosity decreases with increasing alkali concentration because of the reaction being prematurely stopped by saponification. At very low alkali concentrations, a maximum of viscosity of the polymer formed

84501

Interfacial Polycondensation of Diamine Salts With Chlorides of Dicarboxylic Acids

S/190/60/002/004/001/020
B004/B056

was observed, without the cause as yet being explained. Apart from the polymers described, the following were produced: polymers from phenylene-diamine hydrochloride + terephthalic acid chloride; hexamethylene hydrochloride + adipic acid chloride; hexamethylene hydrochloride + sebacic acid chloride; and ethylene-diamine hydrobromide + sebacic acid chloride. There are 2 figures and 5 references: 4 Soviet and 1 British.

ASSOCIATION: Nauchno-issledovatel'skiy institut sinteticheskikh smol, Vladimir (Scientific Research Institute of Synthetic Resins, Vladimir)

SUBMITTED: May 13, 1959

Card 3/3

83819

S/190/60/002/005/009/015
B004/B067

15.8107 also 2209

AUTHORS: Sokolov, L. B., Kudim, T. V.

TITLE: Production of High-molecular Aromatic Polyamides by Interfacial Polycondensation in Acid Media

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 5, pp. 698-703

TEXT: In the introduction, the authors discuss the synthesis of aromatic polyamides by reacting aromatic diamines with aromatic dicarboxylic acids. The authors wanted to determine the conditions of interfacial polycondensation under which the maximum molecular weight of the polymers can be obtained. Proceeding from the equations for the reaction rate of polycondensation and the rates of termination of polycondensation by a) reaction of acid chloride groups with alkali or water, b) reaction of the amino group with acid, the following equation is deduced for the degree P of polycondensation: $P = 2k_1 [AcCl][Diam] / k_2 [AcCl][OH^-] + k_3 [Diam][H^+]$ (5)

(AcCl = acid chloride, Diam = diamine). An analysis of this equation (Fig.), shows that at a certain pH P attains a maximum. Since aromatic

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amides by Interfacial Polycondensation in Acid B004/B067
Media

diamines are weaker bases than aliphatic diamines; K_1 becomes small in the former, and the maximum is shifted toward small pH values. It was experimentally proved that the reaction between aqueous solutions of aromatic diamines (p- and m-phenylenediamine, diaminodiphenyl ether) and terephthalyl chloride (dissolved in toluene) in the presence of HCl, H_3PO_4, or CH_3COOH yields polymers with a higher molecular weight than in a basic medium. Fig. 2 shows the molecular weight (expressed in terms of the viscosity of the polymer in H_2SO_4) as a function of pH. The different buffer effects of the three acids are illustrated in a table. Fig. 3 shows the viscosity of polyamides obtained by means of the three aromatic diamines as a function of the pH of acetic acid. The synthesis of polyamides from p-phenylenediamine and sebacyl acid chloride in an acid medium failed. As may be seen from Fig. 4, the polyamide yield decreases in an acid medium, and the authors discuss the possibility of raising the yield by keeping the pH of the solution constant, inspite of the liberation of HCl. A. P. Moskvina participated in the experiments. There are 4 figures, 1 table, and 4 references: 2 Soviet and 2 US.

ASSOCIATION: Nauchno-issledovatel'skiy institut sinteticheskikh smol g. Vladimir (Scientific Research Institute of Synthetic Resins, Vladimir)

Card 2/3

SOKOLOV, L.B.; KRUGLOVA, T.L.

Some laws of interfacial copolycondensation. Vysokom.soed. 2 no.5:704-709 My '60. (MIRA 13:8)

1. Nauchno-issledovatel'skiy institut sinteticheskikh smol, g. Vladimir.
(Condensation products) (Amines) (Chlorides)

SOKOLOV, L.B.; TURETSKIY, L.V.

Effect of the dissolving capacity of the organic phase in the interfacial synthesis of polyamides. Vysokom.soed. 2 no.5: 710-715 My '60. (MIRA 13:8)

1. Nauchno-issledovatel'skiy institut sinteticheskikh smol, g. Vladimir.
(Amides)

85425

S/190/60/002/011/025/027
B004/B060

15.8109

AUTHORS: Sokolov, L. B., Turetskiy, L. V., Kudim, T. V.

TITLE: Production of High Molecular Polyoxamides by Polycondensation at the Liquid - Gas Interface

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 11, pp. 1744 - 1745

TEXT: The synthesis of high molecular polyoxamides in the melt is complicated by their poor thermal stability, and in the liquid - liquid interface by the hydrolysis of oxalyl chloride. For this reason, the authors performed the polycondensation in the gas - liquid interface. The following compounds were obtained on the interaction of oxalyl chloride gas with aqueous solutions of diamines: polyhexamethylene oxamide with intrinsic viscosity $[\eta]$ = 0.70, yield 48%, as against $[\eta]$ = 0.27, yield 10% in polycondensation in the water-toluene interface; and poly-p-phenylene oxamide, $[\eta]$ = 1.22, yield 32%, as against $[\eta]$ = 0.53, yield 13% in the water-toluene interface. A study of the effect of temperature, pH, and other factors revealed that the rules

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govern the polycondensation in the gas - liquid interface are different from those holding for the reaction in the interface between water and organic liquid. In the authors' opinion, this method is also applicable to the synthesis of other polymers. There are 1 table and 4 references: 1 Soviet, 2 US, and 1 British.

SUBMITTED: June 29, 1960

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B110/B101

15.8663

AUTHORS: Sokolov, L. B., Kudim, T. V., Turetskiy, L. V.

TITLE: Polycondensation at the liquid-gas interface. I. Rules governing the synthesis of polyhexamethylene oxamide in the gaseous phase

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 9, 1961, 1369-1376

TEXT: The authors studied the rules governing the polycondensation at the gas-liquid interface using aliphatic diamines (DA) (hexamethylene diamine (HMD)), and acid dichlorides. This study was carried out on polyhexamethylene oxamide (PHMO) and oxalyl chloride (OC). DA was dissolved in water, and OC, which was in pure condition, or with N_2, air, etc., in the gaseous phase, was bubbled through the solution. During this bubbling, PHMO films accumulated in the upper part of the vessel. The N_2 supply varied between 1.56 and 1.68 liters/hr. The diamine concentration was 0.2 moles/liter. In order to avoid vapor condensation and to make the polycondensation at the liquid-gas interface possible, the degree of saturation $\alpha = P/P_0$ had

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Polycondensation at the ...

to be less than unity. The heat of evaporation calculated from the dependence of log P_o on the reciprocal temperature by the Clapeyron-Clausius equation was 8.5 kcal/mole. The resultant polymer was washed with H_2O and C_2H_5OH, and then dried. The following data were studied:

Dependence of yield and molecular weight (MW) on: temperature in the reaction vessel and evaporator, diamine concentration in aqueous phase, pH of the aqueous phase, etc. For comparison purposes, PHMO was also prepared by condensation (I) at the interface between H_2O and $CH_3C_6H_5$.

Whereas the MW of PHMO decreases with increasing temperature in condensation I at the interface of two liquids, both MW and yield increase in the condensation (II) in the gaseous phase. In the latter case a mixture containing 0.0067 moles/liter OC was bubbled through 150 cm^3 diamine solution for 1 hr. In I, the PHMO yield (referred to OC) was 2%, the intrinsic viscosity 0.25-0.45, in II the yield was 22% (may be increased up to 50%), and the intrinsic viscosity 0.84. The low data obtained for I are explained by hydrolysis. The increases of yield and viscosity with temperature in the case of II are due to reduced hydrolysis owing to decreased solubility, of the acid chloride vapor with rising temperature.

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PHMO yield and viscosity do not depend on the HMD concentration, as it is characteristic of the condensation in gaseous phase. When the OC concentration is the gaseous increases, the PHMO yield decreases, and the intrinsic viscosity increases. The higher the temperature of evaporation (t_{evap}), the lower may be the temperature of the reaction vessel (t_{reac}). At t_{evap} = 10°C (α_{evap} = 0.93), t_{reac} may be $<10°C$, at t_{evap} = 58°C (α_{evap} = 0.34), it may be 36°C. For a 15-min experiment and a volume of the aqueous phase of 250 cm^3 it was found that the PHMO viscosity did not depend on the height of the aqueous layer. If the height of the aqueous layer is more than 5-15 mm, the yield does not depend either on it, because in this case the time of macromolecule formation is commensurable with the sojourn time in water. The common features of I and II are: (1) reaction in the absence of equimolecular ratios; (2) production of heat-resistant compounds; (3) dependence of yield on the pH of the aqueous phase. This indicates that II apparently takes place in the polymer film. II is also applicable to acid chlorides which are more stable than OC. The authors thank A. P. Moskvina for assistance in experiments. There are 2 figures, 4 tables, and 12 references: 7 Soviet and 5 non-Soviet. The three most recent

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Polycondensation at the ...

references to English-language publications read as follows: Ref. 1: J. A. Somers, Man-Made Text., 381, 60, 1956; Ref. 7: P. W. Morgan, S. L. Kwolek, J. Polymer Sci., 40, 137, 299, 1959; Ref. 11: R. G. Beaman et al. J. Polymer Sci., 40, 326, 1959.

ASSOCIATION: Nauchno-issledovatel'skiy institut sinteticheskikh smol, Vladimir (Scientific Research Institute of Synthetic Resins, Vladimir)

SUBMITTED: November 21, 1960

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B130/B110

AUTHORS: Turetskiy, L. V., Sokolov, L. B.

TITLE: Effect of surface tension at the liquid boundary in interfacial synthesis of polyamides

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 10, 1961, 1449-1455

TEXT: The authors studied the effect of surface tension at the boundary of two liquids on the molecular weight of the resulting polymers (polyamides). They used solvents with a sufficient surface tension at the interface with water (octane, carbon tetrachloride, and chloro benzene). The Eastern German E-30 emulsifier, a sodium lauryl sulfate (>92%), was used as surface-active substance for measuring the surface tension. The authors studied the effect of emulsifier additions and, thus, the effect of interfacial tension in the synthesis of poly-p-phenylene terephthalamide, polyethylene terephthalamide, polyhexamethylene terephthalamide, and polyhexamethylene sebacinamide. The polyamide synthesis was performed with

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or without stirring The heavier phase was first put in a crystallizer; then, the lighter phase was added slowly along the walls. The resulting polymer film was removed cautiously. The intrinsic viscosity of the polymers was determined in concentrated sulfuric acid. Since a direct measurement of the surface tension at the interface of liquids used for polycondensation (diamine- and acid chloride solution) is impossible without changing the rea tion conditions, the authors performed measurements of model systems: organic solvents - aqueous solution of diamine and emulsifier, according to the Rebinder method (N. V. Mikhaylov et al., Vysokomolek. soyed. 2, 989, 1960). The measurements showed that the tension at the interface aqueous diamine solution - organic solvent was lower than at the interface water - organic solvent. The following was found: (1) The intrinsic viscosity of polyamides decreases with increasing emulsifier concentration in the aqueous phase; the tension at the interface decreases at the same time. (2) The molecular weight of polyamides decreases with decreasing tension at the interface of the liquids. The polymer yield however, does not change. (3) The tension at the interface acts differently on different polyamides (Fig. 2). In polyamides with aliphatic links on their chains, the effect of the dissolving power of the organic

Effect of surface tension at the liquid ...

phase is much higher. By regulation of the surface tension it is possible to prepare high-molecular compounds already at the beginning of the reaction. At that stage, the diffusion is inhibited by the surface tension at the interface. A paper by A. S. Shpital'nyy, Ya. A. Kharit, R. B. Chernomordik, D. G. Kulakova (Zh. prikl. khimii, 33, 1150, 1960) is mentioned. V. P. Ivanova and L. A. Stepanova assisted in the experiments. The authors thank A. A. Zhukhovitskiy for a discussion. There are 2 figures, 3 tables, and 10 references: 7 Soviet and 3 non-Soviet. The three references to English-language publications read as follows: P. W. Morgan, SPE Journal, 15, 485, 1959; P. W. Morgan, S. L. Kwolek, J. Polymer Sci. 40, 299, 1959; W. H. Carothers, Trans. Faraday Soc., 32, 39, 1936.

ASSOCIATION: Nauchno-issledovatel'skiy institut sinteticheskikh smol, Vladimir (Vladimir Scientific Research Institute of Synthetic Resins)

SUBMITTED: October 24, 1960

Card 3/5

SAVINOV, V.M., nauchnyy sotrudnik; SOKOLOV, L.B., nauchnyy sotrudnik

Use of plastics for manufacturing loom shuttles; review of foreign publications. Tekst.prom. 21 no.12:78-79 D '61. (MIRA 15:2)

1. Vladimirskiy nauchno-issledovatel'skiy institut sinteticheskikh smol.

(Looms)
(Plastics)

2735

15 8080 2209 1372 2409

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D204/D305

AUTHORS: Savinov, V.M., and Sokolov, L.B.

TITLE: The synthesis of some diamino-ethers and polyamides based on them

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 9, 196.. 2124 - 2125

TEXT: The problem was to obtain heat-stable polymers (e.g. polyamides with aromatic nuclei in the chain) by a convenient method. The presence of aromatic nuclei in the polymer chain gives rise to increased hardness which cancels out some good mechanical properties of polymers. One of the methods of reducing this hardness is to introduce a simple ether bond in the polymer chain. This is usually effected by synthesis from monomers which contain the simple ether bond. The more expensive β, β'-di-iodo-diethyl ether was replaced by "chlorex" -β,β'-dichlorodiethyl ether. A 45-50 % yield was obtained, the method used being briefly described as follows:

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